REMARKS

Applicant respectfully requests reconsideration of this application as amended. Claims 1, 13-15, 23, 35, 40, 45, 47, 48, 52, 58-63, 65-70 and 78-84 and 86 have been amended. Claims 11, 12, 46, 85 and 87 have been canceled without prejudice. No new matter has been added. Claims 1-10, 13-15, 17-45, 47-84 and 86 remain pending. In the following remarks, references to claims amended herein refer to such claims as amended.

Allowable Subject Matter

Claims 12, 14, 43, 44, and 86 have been objected to as being dependent on a rejected base claim, but indicated to be allowable if rewritten in independent form to include the limitations of the base claim and any intervening claims.

Claim 1 has been amended to include all the limitations of claims 11 and 12 with the exception that the claim 11 recitation "adapted to *store* a respective one of the plurality of bits" is changed to "adapted to *receive* a respective one of the plurality of bits." Applicant submits that amended claim 1 is in condition for allowance.

Claim 14 has been amended to include all the limitations of claims 1 and 13, from which it depends, with the exception that the claim 13 recitation "adapted to *store* a respective one of the plurality of bits" is changed to "adapted to *receive* a respective one of the plurality of bits." Applicant submits that amended claim 14 is in condition for allowance.

Applicant acknowledges the allowability of claims 43, 44 and 86 but, in view of the remarks below, respectfully declines to amend those claims at this time.

Claim Rejections – 35 U.S.C. § 102

Claims 1-11, 13, 15-42, 45-85 and 87 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,633,953 to Stark ("Stark").

As discussed above, applicant has amended claim 1 and respectfully submits that claim 1 is in condition for allowance. Because claims 2-10 and 13 depend from and further limit claim 1, applicant submits that these claims are also in condition for allowance.

Claims 11, 12, 46, 85 and 87 have been canceled without acquiescence to the reasons for rejection. Applicant submits that the rejection of those claims is moot.

As to the remaining rejected claims, 15-42, 45 and 46-85, applicant submits that each such claim includes one or more limitations not disclosed in Stark and therefore is not anticipated by Stark.

For example, claim 15 recites a CAM cell comprising, in part:

> an input to receive a second result signal from another CAM cell, and wherein the circuitry to output the first result signal in the first state is adapted to output the first result signal in the first state if the comparand value is equal to the first boundary value and the second result signal is in the first state.

Applicant submits that Stark does not disclose the above-recited limitation. Stark discloses a range content-addressable memory (RCAM) in which a key is provided to a pair of comparators and for comparison with k-bit words N_L and N_H (Stark, col. 21, line 25 – col. 22, line 60; Figures 6 and 7), but does not disclose or suggest any particular architectural arrangement, much less the CAM cell specifically recited in applicant's claim 15. Because Stark does not disclose all the limitations recited in claim 15, applicant submits that claim 15 is not anticipated by Stark. Because claims 17-22 depend from and further limit claim 15, applicant submits that claims 17-22 also are not anticipated by Stark.

Claim 23 recites, in part,

> a compare circuit coupled to the first storage circuit to receive the first value and coupled to a mode signal line to receive a mode signal, the compare circuit being adapted to compare a comparand value to the first value and to output a first result signal, the first result signal indicating whether the comparand value is greater than the first value when the mode signal is in a first state, and the first result signal indicating whether or not the comparand is equal to the first value when the mode signal is in a second state.

Stark does not disclose the above recited limitation. Stark discloses performing comparison operations to determine whether an input key falls within a range: a first comparison to determine whether the input key is larger than, or equal to, the range's lower boundary, and a second comparison to determine whether the input key is smaller than the range's upper boundary (Stark, col. 5, lines 45-53). As each of these operations is an inequality operation (i.e., greater-than-or-equal-to, and less-than) that indicates whether the input key is above or below a boundary, neither operation indicates "whether or not the comparand is equal to the first value" as recited in applicant's claim 23. For example, the TRUE signal that results from the two comparison operations indicates whether the input key is within the range (Stark, col. 5, lines 53-

56), and does not indicate "whether or not the comparand is equal to the first value". In view of this clear distinction, applicant submits that Stark does not disclose the above recited limitation and therefore that claim 23 is not anticipated by Stark. Because claims 24-28 depend from and further limit claim 23, applicant submits that claims 24-28 also are not anticipated by Stark.

Claim 29 recites, in part:

> a first compare circuit coupled to receive the first value from the first
> storage circuit and having a select input to receive a level select signal,
> the first compare circuit being adapted to compare a comparand value to
> the first value and to assert a beyond-boundary signal if the level select
> signal is in a first state and if the comparand value is greater than the
> first value, the first compare circuit being further adapted to assert the
> beyond-boundary signal if the level select signal is in a second state and
> if the comparand value is less than the first value.

Applicant respectfully submits that Stark does not disclose the above-recited limitation. Stark discloses that the upper boundary of a range may be closed or open (Stark, col. 9, lines 8-52), but does not disclose or suggest the level select signal as recited in claim 29. Because Stark does not disclose the above-recited feature, applicant submits that Stark does not anticipate claim 29. Because claims 30-34 depend from and further limit claim 29, applicant submits that claims 30-34 also are not anticipated by Stark.

Claim 35 recites, in part:

> at least one mode select line coupled to at least one set of CAM cells
> within the plurality of CAM cells, the set of CAM cells being adapted to
> compare a comparand value to a range defined, at least in part, by a first
> value stored within the set of CAM cells if a mode select signal on the
> mode select line is in a first state, and the set of CAM cells being
> adapted to determine whether or not the comparand value is equal to the
> first value if the mode select signal is in a second state.

Applicant submits that, at least for the reasons given above in reference to claim 23, Stark does not disclose the above recited limitation and therefore that Stark does not anticipate claim 35. Because claims 36-39 depend from and further limit claim 35, applicant submits that claims 36-39 also are not anticipated by Stark.

Claim 40 recites in part

> a content addressable memory (CAM) device coupled to receive
> instructions and data values from the processor, the CAM device
> including a plurality of CAM cells and being responsive to a first
> instruction from the processor to select either a first operating mode or a
> second operating mode for the plurality of CAM cells, the plurality of
> CAM cells being adapted to compare a comparand value to a range
> defined, at least in part, by a first value stored within the plurality of CAM
> cells if the first operating mode is selected, and the plurality of CAM cells
> being adapted to determine whether or not the comparand value is equal
> to the first value if the second operating mode is selected.

Applicant submits that, at least for the reasons given above in reference to claim 23, Stark does not disclose the above recited limitation and therefore that Stark does not anticipate claim 40. Because claims 41 and 42 depend from and further limit claim 40, applicant submits that claims 41 and 42 also are not anticipated by Stark.

Claim 45 recites in part

> a content addressable memory (CAM) device coupled to receive
> instructions from the processor, the CAM device including a first plurality
> of CAM cells and being responsive to a first instruction from the
> processor to store a first boundary value in the first plurality of CAM cells,
> the first plurality of CAM cells being adapted to compare the first
> boundary value with a first comparand value in a compare operation and
> to output a first result signal indicative of whether the first comparand
> value is greater than the first boundary value, wherein the first plurality of
> CAM cells are responsive to a mode select signal to operate in either a
> range mode or a ternary mode, the first plurality of CAM cells being
> adapted to output the first result signal when operated in the range
> mode.

Applicant submits that Stark does not disclose CAM cells that are responsive to a mode select signal to operate in either a range mode or a ternary mode. Stark discusses limitations of ternary CAM technology as motivation for the RCAM (Stark, col. 2, line 25-col. 3, line 35), but does not disclose or suggest the above-recited limitation. Because Stark does not disclose all the limitations of claim 45, applicant submits that claim 45 is not anticipated by Stark. Because

claims 47-51 depend from and further limit claim 45, applicant submits that claims 47-51 also are not anticipated by Stark.

Claim 52 recites, in part:

> a content addressable memory (CAM) device coupled to receive instructions from the processor, the CAM device including a first plurality of CAM cells and being responsive to a first instruction from the processor to store a first boundary value in the first plurality of CAM cells, the first plurality of CAM cells being adapted to compare the first boundary value with a first comparand value in a compare operation and to output a first result signal indicative of whether the first comparand value is greater than the first boundary value, wherein the CAM device includes multiple independently searchable storage blocks each having multiple rows of CAM cells therein, the first plurality of CAM cells being included within one of the rows of CAM cells in one of the searchable storage blocks

Applicant submits that Stark does not disclose the above recited limitation. For example, while Stark discloses an RCAM device having an entry list of range words, RW_1-RW_n (Stark col. 22, lines 1-14), Stark does not disclose a CAM device having multiple independently searchable storage blocks each having multiple rows of CAM cells therein, as recited in applicant's claim 52. Because Stark does not disclose all the limitations of claim 52, applicant submits that claim 52 is not anticipated by Stark. Also, because claims 53-57 depend from and further limit claim 52, applicant submits that claims 53-57 also are not anticipated by Stark.

Claim 58 recites, in part:

> asserting a first result signal if (1) the comparand value is within a range defined, at least in part, by the first value, and (2) a mode signal is in a first state; and
>
> asserting the first result signal if (1) the comparand value matches the first value, and (2) the mode signal is in a second state.

Applicant submits that Stark does not disclose the above-recited combination for at least the reasons given above in reference to claim 23 and therefore that Stark does not anticipate claim 58. Because claims 59-64 depend from and further limit claim 58, applicant submits that claims 59-64 also are not anticipated by Stark.

Claim 65 recites, in part:

> means for asserting a first result signal if (1) the comparand value is
>> within a range defined, at least in part, by the first value and (2) a
>> mode signal is in a first state; and
>
> means for asserting the first result signal if (1) the comparand matches
>> the first value, and (2) the mode signal is in a second state

Applicant submits that Stark does not disclose the above-recited combination for at least the reasons given above in reference to claim 23 and therefore that Stark does not anticipate claim 65. Because claims 66-69 depend from and further limit claim 65, applicant submits that claims 66-69 also are not anticipated by Stark.

Claim 70 recites in part:

> at least one range compare cell configured to store a bit of a range limit,
>> wherein the at least one range compare cell is further configured
>> to output a first result signal that indicates whether a first bit of a
>> comparand is outside of a range defined by the bit of the range
>> limit; and
>
> at least one CAM cell configured to store a data bit, wherein the at least
>> one CAM cell is further configured to output a match signal that
>> indicates whether the stored data bit matches a second bit of the
>> comparand, wherein at least one range compare cell and at least
>> one CAM cell are coupled to a common match line.

Applicant submits that Stark does not disclose the above-recited combination. As discussed above, Stark discloses CAM the above-recited combination. As discussed above, Stark discloses a range content-addressable memory (RCAM) in which a key is provided to a pair of comparators for comparison with k-bit words N_L and N_H (Stark, col. 21, line 25 – col. 22, line 60; Figures 6 and 7), but does not disclose or suggest any particular architectural arrangement. For example, Stark does not disclose or suggest at least one range compare cell and at least one CAM cell coupled to a common match line, as recited in applicant's claim 70. Because Stark does not disclose all the limitations of claim 70, applicant submits that Stark does not anticipate claim 70. Also, because claims 71-77 depend from and further limit claim 70, applicant submits that claims 71-77 also are not anticipated by Stark.

Claim 78 recites in part:

outputting a final result signal from the most significant range compare cell to a match line, wherein the final result signal indicates at least whether the comparand is greater than or less than the first value, wherein the plurality of range compare cells comprises a plurality of configurable cells, including a most significant configurable cell, and a plurality of less significant configurable cells for storing bits of the first value according to their significance, the method further comprising, setting a mode select signal to select a range compare mode or a ternary CAM mode, wherein, in the ternary CAM mode, the first value comprises a data word and a mask word, and wherein, in the range compare mode, the first value comprises at least one of an upper range limit and a lower range limit.

Applicant submits that, at least for the reasons given above in reference to claim 23, Stark does not disclose the above recited limitation and therefore that Stark does not anticipate claim 78. Because claims 79-84 depend from and further limit claim 78, applicant submits that claims 79-84 also are not anticipated by Stark.

Conclusion

Applicant respectfully submits that all pending claims are in condition for allowance. If a telephone interview would be helpful in any way, the examiner is invited to call the undersigned attorney.

A petition for an extension of time is enclosed herewith.

Authorization is hereby given to charge deposit account 501914 for any fee deficiency associated with this Amendment.

Respectfully submitted,

SHEMWELL GREGORY & COURTNEY LLP

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Charles E. Shemwell, Reg. No. 40,171
Tel. 408-236-6645